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ENTOMOLOGICAL NEWS

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The Early Genera of Ithomiinae. (Lepidoptera: Nymphalidae).

By WM. T. M. FORBES, Cornell University, Ithaca, New York.

The Ithomiinae are a group whose natural arrangement has been disguised by much mimicry (Müllerian, of course) within the group. The present note is based on a survey of quite a number of characters, ignoring pattern features, in an attempt to judge what is the really most probable ancestral type, and the line of development of the higher genera.

In general we may take Schatz's arrangement in Staudinger's "Exotische Tagfalter," vol. 3, as representing the chief structural subdivisions and, with one or two exceptions, the genera. As to the primitive genera (his Gruppe I) there has been general acceptance of the more recent subdivision of *Tithorea*, and I shall for this note use the names that Seitz's "Macrolepidoptera of the World" has made familiar. The only other genus that needs subdivision is *Athesis*, whose *dercyllidas* group shows much divergence in pattern and some in structure from *A. clearista*. A striking likeness to *Hirsutis* in sex-tufting, wing-form and some details of pattern is not wholly supported by other structures; I shall leave its fuller discussion to Mr. Fox, but note here that it must lie between *Hirsutis* and *Athesis*—about as far off the main line of evolution as *Tithorea* is in another direction.

Pending Mr. Fox's revision of the genera[1] I shall use the system of names established by Schatz and slightly extended by Haensch in the "Macrolepidoptera of the World".

Schatz's "Gruppe I" is defined in the male by having a clearly separate tibia and tarsus of the male fore leg, which is normally almost as long as the femur. Two exceptions make a little trouble—in *Thyridia* (*Methona*) the tibia and tarsus, while distinct, are much shorter than the femur, and in *Melinaea egina* (with its form *paraiya*) the tibio-tarsus is reduced to the

[1] Since published in Trans. Amer. Ent. Soc. 66: 161-207, 1940.

same little knob so typical of "Gruppe II". *M. comma* has reached about the stage of reduction of *Thyridia,* but varies individually. On the other side of the boundary *Aprotopus* has the tibio-tarsus less reduced than the residue of group II. Personally I believe it is a separate reduction from something not unlike *Thyridia,* and merely parallel to the *Mechanitis* and *Ithomia* types.

Group I is then taken to include *Hirsutis, Tithorea, Athesis, Olyras, Eutresis, Athyrtis, Melinaea* and *Thyridia,* with *Aprotopus* as a doubtful appendage.

To determine the ancestral form we may take *Tellervo* as a norm. Whether actually Ithomiid, or a distinct subfamily as now listed (see Ent. Am. xix, 102) it is certainly nearer to the ancestral stem than any other living type. It shares with other early Nymphalidae the following features which vary significantly within the remaining genera of "Group I": M-spur attached to middle discocellular[2] in both wings; lower discocellular forming an acute angle with m-cu, the cubitus being of the "trifid" type; Sc and R of hind wing widely separated at origin, as in normal Nymphalidae; hum. forming a wide and fairly symmetrical Y-fork, cell of hind wing much shorter than free part of R. We may also note that Sc is long and similar in both sexes, unlike the Melinaea and Mechanitis groups, and that the scaling, while somewhat thin, is not degenerate.

Comparing our list of genera to this set of characters it turns out that *Hirsutis* comes definitely nearest, differing in the simpler hum. and movement of the M-spur to ldcv, but even the latter has only reached M_3 in some specimens. This is also one of the genera that sometimes has R_3 free, as in *Tellervo,* though never so far back on the cell. Our female of *H. togarma* shows this. The rest of the genera fall into a single line, as listed above, ending in *Aprotopus,* each genus being like those immediately before and after in more features

[2] This is the upper M-spur, i. e., M_{1+2}; the lower one, M_3, while equally clear in *Tellervo,* is weak or reduced to a fold in the proper Ithomiinae—it always arises from ldcv.

than to any others. The only possible other candidates for position next to *Tellervo* are *Tithorea,* on account of its more perfectly separate Sc and R, and *Athesis acrisione,* which still has the M-spur on the mdcv of a perfectly "trifid" wing. The remaining genera with high M-spur are quadrifids, and the spur has no doubt moved up secondarily to the migration of M_3 itself.

The successive steps of development may be noted as follows, though the actual arrangement was made on the basis of some 20 characters, both superficial and genitalic.

At *Athesis* Sc and R of female hind wing become distinctly approximate at base; with *Olyras* the angle between udcv and m-cu of hind wing becomes obtuse, though the venation is not truly quadrifid till we come to *Athyrtis;* the free part of R in the male also becomes much shorter than the cell at *Olyras.*

With *Thyridia* the distal fork of hum. becomes very long and the uncus becomes much reduced; Sc and R are closely parallel for a greater distance than in the preceding genera, and the general transparent ground is unlike any of the preceding, though approached by the extensive transparent spotting of *"Athesis" hewitsoni.* In each of these points *Aprotopus* resembles *Thyridia,* and the closely parallel Sc and R is the only one really typical of group II. Only the relatively long R suggests an origin from an earlier genus, perhaps *Athesis.*

Other features tend strongly to tie neighboring genera, but are not too consistent: thus the narrow V-shaped juxta is present in *Hirsutis, Athesis* (including *dercyllidas*) and *Tithorea,* and not in *Olyras, Eutresis, Thyridia* or *Aprotopus,* but it does reappear in *Melinaea.* A specialized costal process of the valve is limited to *Athyrtis* and *Melinaea,* which on all points make a subgroup together, but *Thyridia* has a different specialization of the costa—a rough thickening that reaches from the joint clear to the apex of the valve. The thin penis links together *Athesis* and *Olyras,* but reappears in *Aprotopus.*

As to the origin of Group II, I have already noted the marked likeness, deep as well as superficial, between *Aprotopus* and *Thyridia.* Tabulation of the same list of characters in a

couple of other genera, shows a marked linkage between *Mechanitis* and *Melinaea* (and of course *Scada*, with *Heteroscada*, and *Sais* must follow *Mechanitis*), but the later genera with their decidedly "trifid" venation seem to my eye to link more closely with *Athesis*. So my present opinion is that group II is triphyletic: *a*, *Aprotopus*, to be treated like *Melinaea egina* as a sporadic reduction of group I; *b*, *Mechanitis*, *Scada* and *Sais*; *c*, the residue. *Velamysta* shows the short spur of Sc arising from far out on the cell in the female, like *Mechanitis*, but I should put more weight on the character of udcv, which is quite normal for the *Ithomia-Heterosais* series.

On Two Species of Diploplectron from Texas (Hymenoptera: Sphecidae).

By V. S. L. Pate, Cornell University.

In 1902, James A. G. Rehn and the late Henry Lorenz Viereck made their first collecting trip to the southwestern United States. Much of the material taken on that expedition has long since been reported upon, yet there still remains, in the collections of the Academy of Natural Sciences of Philadelphia, a considerable residue, at least of the smaller Hymenoptera, to be studied. Recently while sorting this material, the following interesting new forms were discovered and are herewith described.

Diploplectron vierecki[1] new species.

The black head and thorax and bright ferruginous abdomen immediately distinguish the present and the following new form from all other Nearctic *Diploplectra*. The closest ally of *vierecki* is apparently *D. bidentatus* Ashmead, but in addition to the different general livery, the present species may be separated from that form by the unclouded fore wing, the immaculate clypeus and front, and the much smaller clypeal teeth.

Type. ♂ ; Foothills of the Franklin Mountains north of El Paso, El Paso County, Texas. Elevation, 3713-4000 feet.

[1] After its collector, the late Henry Lorenz Viereck.

April 5, 1902. (H. L. Viereck.) [Academy of Natural Sciences of Philadelphia, Type no. 10571.]

♂. 4.5 mm. long. Black; mandibles, save for red apices, deep yellow; antennae dark fuscous; legs distad of femora deep fulvous; tegulae and axillary sclerites fuliginous; abdomen bright ferruginous. Wings clear hyaline, iridescent, hind wings with an ovate fuscous cloud subapically; veins and stigma deep fulvous.

Head fulgid; front, vertex, post-temporal region and clypeus with a sparse clothing of short, suberect, dark aenous setulae. Front inconspicuously tumid; with a microscopically fine shallow, clathrate foveolation superposed upon which are a few small, irregularly disposed, shallow alveoli; bisected discally by a short furrow. Vertex sculptured like front but more finely so; postocellar distance one and one-half times the length of ocellocular line; temples subnitidous and subglabrous. Antennae reaching to a little beyond tegulae; the antennocular line two and one-half times the interantennal distance; scape short, stout, about one-third (.36) the vertical length of eye; pedicel subcylindrical, five-eighths the length of first flagellar article; flagellum simple, finely puberulent, first two segments subequal in length. Clypeus narrow, transverse, median length two-sevenths the vertical length of eye, flat laterally but rather strongly obtrapezoidally tumid and subnitidous discally, ending medio-apically in an obtusely pointed lobe bearing two very small median teeth distally.

Thorax more or less fulgid; with a moderate clothing of suberect, rather long whitish pubescence dorsally, pleura and sterna more scantily clothed with long, suberect, dark aeneous setulae. Pronotum rounded anteriorly and laterally; with scattered fine punctures, and traversed by a few horizontal, inconspicuous rugulae; tubercles almost attaining tegulae. Mesonotum with small, moderately close punctures; scutellum flat, nitidous and glabrous discally; postscutellum subnitidous medially. Mesopleura without epicnemium anteriorly; episternal suture and episternaulus distinct and well impressed; prepectus and below episternauli with inconspicuous horizontal striae and a few scattered fine punctures, above episternauli and behind episternal suture glabrous and nitidous. Metapleura glabrous, subnitidous, with very inconspicuous horizontal striae. Propodeum with dorsal face glabrous, opaque, granulate tending to become finely transversely rugulate, the anterior margin with fine irregular reticulations, somewhat depressed medio-posteriorly; posterior face subfulgid, with erect, rather long

whitish pubescence, discally with an indistinct cuneiform impression, laterad of which surface is finely and irregularly punctate and rugulate; lateral faces fulgid, with rather long, erect whitish pubescence and a few parallel subhorizontal striae.

Legs with middle and hind tibiae bearing a few weak spines.

Fore wing with third submarginal cell twice as long on cubitus as on radial vein.

Abdomen fulgid; with microscopically fine, transverse clathrate aciculation. Tergites and sternites with a transverse subapical row of short decumbent fine setulae; pygidium small, elongate trapeziform, glabrous, perfulgid, with a few small, coarse, well separated punctures; ultimate sternite elongate, linguiform.

♀. Unknown. *Paratypes.* 2 ♂; Topotypical; April 4, 1901, April 5, 1902; [A. N. S. P.]

The paratypes agree with the type in all essential details of livery and structure, except that in the specimen taken April 5th ,1902, the second and third transverse cubital veins of the fore wing have anastomosed anteriorly just before their reception on the radial vein.

Diploplectron kantsi[2] new species.

Although resembling *viereckі* so closely as to be easily confused with it, *kantsi* differs from that form in a number of details, notably in the shape of the clypeus, the penult abdominal sternite, the venation of the fore wing, its opaque granular head and thorax, the different postocellar-ocellocular ratio, and the longer, differently proportioned antennal segments.

Type. ♂; Foothills of the Franklin Mountains north of El Paso, El Paso County, TEXAS. Elevation, 3713-4000 feet. April 6, 1902. (Henry L. Viereck.) [Academy of Natural Sciences of Philadelphia, Type no. 10572.]

♂. 5 mm. long. Black; mandibles dark miniatous; antennae dark fuscous; legs distad of femora deep fulvous; tegulae and axillary sclerites fuliginous; abdomen ferruginous. Wings hyaline, uniformly tinged throughout with light fulvous; hind wings with a small diffuse light fuscous cloud subapically; veins and stigma fuliginous.

Head opaque; sparsely clothed with decumbent whitish pubescence. Front finely granulate, bisected discally by a short

[2] Named after the Lipan Indians, who were given the name Kantsi by the Caddo.

furrow. Vertex subgranular; postocellar distance about one-half the length of ocellocular line; temples subfulgid, with microscopically fine, shallow, clathrate faveolation. Antennae long, reaching at least to middle of scutellum; antennocular line two and one-half times the interantennal distance; scape short, stout, one-fourth the vertical length of eye; pedicel subcylindrical, one-third the length of the elongate first flagellar article; flagellum somewhat compressed, first two segments elongate, the second five-sixths the length of first article. Clypeus subopaque, narrow, transverse, median length one-fourth the vertical length of eye, flat laterally to obtrigonally tumid discally, ending medio-apically in an obtusely pointed lobe bearing two minute median teeth distally.

Thorax granular, more or less opaque; thinly clothed with suberect, rather long whitish pubescence. Pronotum rounded anteriorly and laterally; the tubercles almost attaining the tegulae. Mesopleura granulate throughout, with episternal suture and episternauli distinct and well developed. Metapleura glabrous, finely granulose. Propodeum opaque, granulose throughout; dorsal face glabrous; posterior and lateral faces scantily clothed with short suberect light pubescence; posterior face with a median cuneiform impression dorsad.

Legs with middle and hind tibiae bearing a few weak spines.

Fore wings with first transverse cubital vein bearing a spur directed toward the base of stigma; second submarginal cell subtrigonal, the second and third transverse cubital veins coming together to a point on radius; third submarginal cell twice as long on radius as on cubitus.

Abdomen more or less fulgid; with microscopically fine, transverse clathrate aciculation. Tergites and sternites with a transverse subapical row of short decumbent fine setulae; pygidium small, elongate, narrow trapeziform, developed only on posterior half of ultimate tergite, and glabrous, perfulgid, with a few punctures; ultimate sternite elongate linguiform apically, penult sternite trigonal, narrowly truncate and notched medio-apically, the posterior half somewhat compressed.

♀. Unknown. This species is known at present from only the unique male described above.

Notes on Costa Rican Mycetophilidae (Diptera).

By ELIZABETH G. FISHER, Academy of Natural Sciences of Philadelphia.

Dr. Alan Stone has kindly called my attention to the fact that *Leia analis* Fisher (Trans. Am. Ent. Soc. *65*: 232-233. 1939) is a homonym of *Leia analis* Meigen (Syst. Beschr. *1*: 257. 1818). The latter is now considered to belong to the genus *Boletina*. I therefore propose the name *Leia costaricensis* new name for *Leia analis* Fisher.

The four males identified by me as *Platyura* (*Proceroplatus*) *pictipennis* Williston are a distinct species. Dr. F. W. Edwards has sent me a rough sketch of the dry male terminalium of Williston's type in the British Museum. It differs from that figured by me. (Fisher l. c. pl. 13, fig. 6). I therefore describe the Costa Rican species below:

Platyura (Proceroplatus) vittata new species

1939. *Platyura* (*Proceroplatus*) *pictipennis* Williston, Fisher Trans. Am. Ent. Soc. *65*: 228, pl. 13, fig. 6.

This species is close to *Platyura pictipennis* Williston differing in terminalial structure as well as in color. These color differences are described in the author's paper referred to above.

♂. Total length 2.8 to 3 mm. Face yellow; vertex dark brown, deep black around the ocelli. Palpi dark brown. Mesonotum brown with a wide median yellow stripe, the humeral angles and the lateral margins whitish. Pleura whitish yellow except the pleurotergites which are deep brown. Scutellum yellow. Apex of the postnotum deep brown. Mesonotum uniformly setose. Anepisternites and pleurotergites with setae. Halteres yellow, knob brown. Legs yellow. Fore tibia longer than fore basitarsus (1. 5: 1.). Abdomen brown to blackish-brown, except the first segment which is entirely yellow; the second to fifth tergites with yellow posterior margins, the sixth and seventh tergites deep brown .

Type: ♂ ; San José, COSTA RICA (H. Schmidt). June 27, 1930. [Acad. Nat. Sci. Phila. no. 6626].

Paratypes: 3 ♂ ; San José, Costa Rica (H. Schmidt). April (defective) May 7, June 23, 1930.

Some of the Eumolpinae and Chrysomelinae of South Dakota (Coleoptera).

By Paul H. Johnson, Mexico, Missouri.

The specimens seen were those in the collection of the Entomology-Zoology Department of the South Dakota State College at Brookings.

This collection is composed of the Truman collection, and of collections made by various members of the Entomology Department of State College. The Truman collection was bought by State College after his death, which occurred in the early 1900's. Very few of the specimens in the Truman collection have date labels, and the locality labels at times seem to be incorrect. The collections of the Entomology Department have been state-wide in extent and have been carried on for a number of years.

The specimens in the Truman collection have no collector labels, so any specimen in that group is marked by a "T" in the list. Other collectors were John Hetland, G. I. Gilbertson and H. C. Severin. All specimens collected by these men are marked in the list by the initials of their surnames.

There were twenty-four species, representing eleven genera, of th tribe Chrysomelinae in the collection. Of the eleven genera two (*Phaedon* and *Prasocuris*) may not occur in the State. *Phaedon* was found only in the Truman collection, and the species represented is not likely to inhabit South Dakota. *Prasocuris* was found only in the Truman collection.

There were twenty species of Eumolpinae representing thirteen genera found in the collection. This is not including *Fidia viticida* Walsh, which occurs in the State, but was not represented in the collection. The only doubtful genus in the Eumolpinae is *Colaspidea*. There were four of these in the Truman collection; three were from Los Angeles, California, and the other was labeled Volga, South Dakota.

Eumolpinae.

Adoxus obscurus (Linn.), 1 specimen, Englewood (June) G.

A. OBSCURUS VITIS (Fab.), 8 specimens, Englewood (June) G.

MYOCHROUS MOVALLUS Johnson, 5 specimens, Elk Point (June) G.

M. SQUAMOSUS Lec., 16 specimens, Whitewood (June) G., Martin (June) G., Canton (June) G., Buffalo (June) G., Philip (June) G., Orman Dam (July) G., Houghton (June) G., Belle Fourche (June) G.

GLYPTOSCELIS ALBIDA Lec., 1 specimen, Newell (July) G.

(G. CRYPTICA (Say), not in collection, but probably in state.)

COLASPIDEA VARICOLOR Crotch, 1 specimen, Volga T. (Leng lists this species from Southern California.)

PARIA CANELLA ATERRIMA (Oliv.), 14 specimens, Philip (June) G., Volga T., Chester (June) G., Belle Fourche (June) G., Colton (June) G., Oelrichs (June) G.

P. CANELLA GILVIPES Horn, 1 specimen, Lake Oakwood (July) S.

P. CANELLA THORACICA (Melsh.), 2 specimens, Oelrichs (June) G., Browns Valley (June) G.

P, CANELLA QUADRINOTATA (Say), 15 specimens, Colton (June) G., Brookings (May) S., Springfield (June) G., Yankton (June) G., Chester (June) G.

P. CANELLA VITTATA Horn, 4 specimens, Volga T., Colton (June) G.

P. CANELLA QUADRIGUTTATA Lec., 5 specimens, Volga T., Springfield (June, August) G.

P. CANELLA SEXNOTATA (Say), 1 specimen, Volga T.

P. CANELLA PUMILA Lec., 1 specimen, Volga T.

CHRYSOCHUS AURATUS (Fab.), 15 specimens, Volga T., Nowlin T., Brookings (June, July) S., Vermillion (July) S., Lennox (August) S., Martin (June) G., Watertown T., White (July) S., Aberdeen (July) S.

C. COBALTINUS Lec., 8 specimens, Volga T., Aurora county T., Brookings, (June, September) S.

XANTHONIA DECEMNOTATA (Say), 9 specimens, Big Stone

(August) S., Whitewood (July) G., Springfield (June) G., Lake Hendricks (August) S.

(X. VILLOSULA (Melsh.), not in collection, but probably in state.)

(FIDIA VITICIDA Walsh, not in collection, but known to be at Yankton and Elk Point.) Severin.

GRAPHOPS PUBESCENS (Melsh.), 2 specimens, Parmelee (June) G., Martin, in sand hills, (August) G.

G. CURTIPENNIS (Melsh.), 2 specimens, Custer (September) G., Kadoka, in Bad Lands, (August) G.

METACHROMA DUBIOSUM (Say), 3 specimens, White (July) G., Little Bend (August) G., Martin, in sand hills, (June) G.

M. INTERRUPTUM (Say), 2 specimens, Elk Point (June) G.

M. PARALLELUM Horn, 2 specimens, Elk Point (June) G.

COLASPIS FAVOSA Say, 28 specimens, South Dakota T., Brookings T. (July) S., Clark (July) S., Volga T., De Smet (July) G., Springfield (June) G., McNelly (June) G.

RHABDOPTERUS PICIPES (Oliv.), 14 specimens, Newell (July) G. S., Springfield (June) G., Vermillion (June) S., Browns Valley (June) G.

NODONOTA TRISTIS (Oliv.), 38 specimens, Volga T., Whitewood (July) G., Lakeview (June) G., Parmelee (June) G., Hot Springs (June) G., Springfield (June) G., Rapid City (June) G., Elk Point (June) G., Martin, in sand hills, (June) G., Pine Ridge (June) G.

N. CONVEXA (Say), 1 specimen, Elk Point (June) G.

N. PUNCTICOLLIS (Say), 181 specimens, Volga T., Brookings T., South Dakota T., Volin (June) G., Whitewood (June, July) G., Springfield (June) G., Newell (July) G., Tabor (June) G., Chester (June) G., White, in Warrens Wood, (August) G., Rosebud (June) G., Lake Hendricks (July) G.

CHRYSODINA GLOBOSA (Oliv.), 26 specimens, Capa (June) S., Armour (June) S., Mitchell (June) S., Parmelee (June) G., Springfield (June) G., Lakeview (June) G., Martin, in sand hills, (June) G., Vivian (June) G., Interior (June) G., Hot Springs (June) G., Fox Ridge (June) G., Pine Ridge

(June) G., Rapid City (June) G., Buffalo (June) G.

CHRYSOMELINAE.

PRASOCURIS PHELLANDRII (L.), 2 specimens, Volga T.

(P. VITATTA (Oliv.), not in collection, but may be in State.)

LABIDOMERA CLIVICOLLIS (Kby.), 21 specimens, Volga T., Elk Point (June) G., Brookings T. (June, August) G. S., Big Stone City T., Springfield (June) G., Canton (August) G., Aurora county T., Capa (August) S.

LEPTINOTARSA DECEMLINEATA (Say), 19 specimens, Brookings (June, July) S. T., Yankton (June) G., Capa (August) S., Volga T.

ZYGOGRAMMA EXCLAMATIONIS (Fab.), 39 specimens, Volga T., Yankton (August) S., Claremont (August) S., Aberdeen (July) S., White Lake (August) G., Lake Oakwood (June) G., Pierre T., Grass Rope (August) G., Philip (June) G., Newell (July) G., Wewela (August) G., Vivian (June) S., Nowlin T., Custer T., Provo (June) G., Rapid City (June) T. G., White River (June) S., Fairfax (August) S.

Z. CONJUNCTA Rogers, 28 specimens, Newell (June, July) G.

Z. SUTORALIS CASTA Rogers, 37 specimens, Volga T., Brookings (August) S. T., Lake Oakwood (June, August) S. G., Vermillion (July) S., White (July) S., Lake Preston (May) S., Colton (August) S., Lennox (August) S., Mitchell (June) S., Lake Hendricks (July) G., Ipswich (July) S., Whitewood (July) G., Rapid City (June) G., Wewela (August) G., Grass Rope (August) G., Yankton (August) G.

CALLIGRAPHA LUNATA (Fab.), 28 specimens, Lake Preston (May) S., White (July) S., Sisseton (July) S., Claremont (August) S., Interior (August) S., Kadoka, in Bad Lands, (August) S., Camp (Fort) Crook (July) S., Wasta (September) S., Capa (August) S.

C. SIMILIS Rogers, 6 specimens, Volga T., Mitchell (August) S., Lake Campbell (August) S., Waubay (September) G., Newell (July) G., Fairfax (August) S.

C. INCISA Rogers, 11 specimens, Brookings T., White (July) S.

C. PRAECELSIS Rogers, 11 specimens, Volga T., Brookings (May, June, August) S., G. T., Springfield (August) G., Canton (June) G.

C. ELEGANS (Oliv.), 29 specimens, Volga T., Brookings (May) S., Yankton (August) S., Lake Oakwood (June) G., Waubay (September) G., Lake Campbell (August) S., Madison (June) S., Newell (July) G., Camp (Fort) Crook (July) S., Englewood (June) G., Martin, in sand hills, (August) G.

C. SCALARIS Lec., 4 specimens, Brookings (July) S., Springfield (June) G., Yankton (August) G., Mitchell (June) S.

C. MULTIPUNCTATA (Say), 71 specimens, Volga T., Elk Point (June) G., Brookings (June, July, August) S. G., Aberdeen (July) S., White (July) S., Lake Preston (August) S., Sisseton (July) S., Newell (July, August) G. H. S.

CHRYSOMELA FLAVOMARGINATA Say, 25 specimens, Volga T., Newell (July) G., Rapid City (June) G., Martin (June) G., Buffalo (June) G., Pine Ridge (June) G., Cave Hills (July) S.

C. AURIPENNIS Say, 1 specimen, Meckling (June) G.

PHAEDON OVIFORMIS (Lec.), 4 specimens, Volga T.

P. VIRIDIS (Melsh.), none in collection from the State, but it may be present.

GASTROIDEA POLYGONI (L.), 96 specimens, Volga T., Brookings (June) T., Lead (July) G.

G. CYANEA (Melsh.), 26 specimens, Volga T., Springfield (June) G. S., Canton (June) G., Yankton (April) S., Newell (June, July) G.

G. VIRIDULA (De Geer), 23 specimens, Pierre (May) S., Rapid City (June) G.

LINA INTERRUPTA Fab., 198 specimens, Volga T. S., Elk Point (June, August) G., Brookings (June, July) S. G., Springfield (June) G., Canton (April, August) S. G., Yankton (April) S., Colton (August) S., Pierre T., Sioux Falls (August) S., Wentworth (August) S., Capa (May) S., Newell (July) G. S., Nisland (July) S.

L. INTERRUPTA QUADRIGUTTATA Sch., 26 specimens, Volga T., Salem (May) S.

L. TREMULAE (Fab.), 42 specimens, Newell (July) G., Custer T., Rapid City (June) G., Whitewood (June, July) G., Engle-

wood (June, July) G., Lead (July) G., Deadwood (July) G.

L. SCRIPTA (Fab.), 71 specimens, Volga T., Brookings (July, August) S. T., Colton (July) S., Pierre T., Wentworth (August) S., Sioux Falls (August) S., Capa (June) S., Newell (July) G.

PHYTODECTA AMERICANA Sch., 8 specimens, Englewood (June) G., Deadwood (July) G. S., Determination confirmed by H. S. Barber.

PHYLLODECTA AMERICANA Sch., 4 specimens, Englewood (June) G., Sylvan Lake (September) G. Determination confirmed by H. S. Barber.

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CROTCH, G. R.—Materials for the study of the Phytophaga of the U. S. Proc. Acad. Nat. Sci. Phil. 1873, pp. 19-83.

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ID.—Notes on the Species of Lina and Allied Genera. The Canadian Ent. Vol. LX, 1928, pp. 42-47.

ID.—On a Few New and Old Chrysomelidae. Jour. N. Y. Ent. Soc., Vol. XXXII, 1924, pp. 138-145.

Damage to Entomological Collections in the British Museum of Natural History.

Science for December 6 and 13, 1940, states that the Museum has been hit by high explosive and incendiary bombs and that the department of entomology was damaged, especially by water seepage.

Notes on Florida Odonata.

By M. J. Westfall, Jr., Baker Museum, Rollins College, Winter Park, Florida.

While connected with the Baker Museum during the past three years I have done considerable field work and collecting in Florida. Being especially interested in Odonata, I have concentrated on these insects with the result that some species have been taken which have proved to be quite unusual and it seems that comments on them would be in order at this time. Various notes of interest are included in the following records.

Progomphus alachuensis. This species was collected very commonly during the Spring of 1939, on the sandy shores of lakes in central Florida. Of the considerable number of specimens taken, only two were females, one collected while emerging, and the other, a mature specimen caught in my hands in the woods about one-half mile from a lake.

Coryphaeschna virens. One female was collected on Lower Matecumbe Key, March 20, 1938, as it flew back and forth over a roadside ditch. In the hand it was quite distinct from *C. ingens,* in the greater extent of the green coloration of the thorax, as well as other slight differences. Dr. P. P. Calvert confirmed this identification.

Tetragoneuria sepia. Though some persons have doubted the validity of this species, we believe it to be quite distinctive. My first specimens, a male and female, were collected from the street in front of my home in Orlando, at least one-half mile from a lake, on March 28, 1938. Immediately we noticed differences between these and the other Tetragoneurias previously taken. We supposed them to be *sepia* and sent the male to Dr. P. P. Calvert who confirmed the identification. Now I seem to be able to identify this species before capture, especially by the slightly smaller size. Certainly when in the hand, the prominent yellowish spots of the thorax and the relatively longer inferior appendages distinguish *T. sepia* from the other members of that genus found here.

I found a dead male on a lily pad in a Winter Park lake on May 9, 1939. Mr. E. M. Davis collected a male on the west

end of the Tamiami Trail in the early part of March, 1939. In the afternoon of June 7, 1939, my father and I were collecting various small Odonata for about an hour in Nassau County at what is known as Boggy Creek. We had almost decided to leave when an unusual dragonfly appeared. I succeeded in catching it and found it to be *T. sepia*. Soon another appeared and then another, until we were swinging right and left at them. They would fly toward the collector until just out of reach of the net and stop in mid-air, often for several seconds, and then dart at great speed perhaps within a foot of the collector who would usually miss. Then the same thing would be repeated. In all the other specimens of *T. sepia* I have taken, this characteristic of hovering so long in the air has not been noticed, but the flight has been much more nervous. With a sling shot or gun that day we might have collected many more, but when we began to learn the trick of catching them with a net it became dark and we found only sixteen specimens had been taken, only one of which was a female. The following morning we returned and stayed until 9 A. M., but no more of these dragonflies appeared. Several of these specimens were presented to the Cornell collection and Dr. Needham agreed on the identification.

This year I took one male and one female at my home again on April 8 and April 21, 1940, respectively. Two females were collected April 8, 1940, at Lake Redbug in Orange County. All the specimens I have taken were collected just before dusk and were not seen at other times, but whether this denotes a tendency toward a dusk-flying habit of this species or not, I would hesitate to say.

CELITHEMIS BERTHA and FASCIATA. The first species with its characteristic red venation of the wings was found commonly on many lakes of central Florida in the Spring of 1939. Also *C. fasciata* was unusually common during the same time, being collected at almost every lake and pond visited. The spotting of the wings was found to be quite variable. In a series of specimens taken in Florida, Georgia, and North Carolina, some were found with no indication of the yellowish color in the pale areas of the wings which is so characteristic of *C.*

fasciata. The dark area just proximal and posterior to the nodus in the front wing in all cases extended posteriorly to Cu_1, and in most cases extended well beyond that vein.

LIBELLULA AURIPENNIS and JESSEANA. It has been a great pleasure, with the help of Mrs. Leonora K. Gloyd, to straighten out some of the kinks in the identification of these two species in Florida. We had formerly believed *L. auripennis* to be very abundant here and *L. jesseana* to be quite rare because of the few purplish bodied specimens of the latter species collected. We now find that *L. jesseana* is our abundant species and *L. auripennis* has certainly not been common in our collecting experience. Because of the very red hue of the stigma and wing veins of *jesseana,* as well as the difference in thoracic markings pointed out by Mrs. Gloyd, field identification is made quite easy. Farther south in the state, on Merritt's Island, and at a few other stations we have taken *auripennis,* while I have collected *jesseana* commonly on up into Georgia and North Carolina. There have probably been many errors made in the identification of specimens of these two species. Some have thought that *L. jesseana* was not a distinct species, but certainly the genitalia and thoracic pattern are very different and separation of the species is quite easy.

SYMPETRUM CORRUPTUM. We have usually found these dragonflies sparingly in Florida. Several specimens have been collected on Merritt's Island and I took one female on Sanibel Island, December 31, 1939. Mr. E. M. Davis found this species very common on the beach near Cape Canaveral in November, 1939.

LEPTHEMIS VESICULOSA. October 2-4, 1939, I was collecting shells at Sanibel and Captiva Islands. While walking down the beach on the gulf shore of Sanibel I saw what appeared to be a large female *Erythemis simplicicollis.* Then another flew by and many more were soon seen. I knew at once that I had found a good place to collect *L. vesiculosa,* but alas, I had no net, only a sling shot and cyanide jar which had been thrown in at the last minute while packing. I found however that the sling shot with coarse sand was very effective in collecting

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them. They lit on the grass, sand, pen shells, etc., and were so indifferent about my presence that I began throwing sand at them and thus catching them easily. Hundreds of them were seen and about 25 collected. On December 27, 1939, I returned to Sanibel but saw only one *Lepthemis* on the gulf shore during our stay. However, on January 1, 1940, I visited the bay side of the island and found them just as abundant as they had been on the gulf shore in October; 35 were taken in a short time, males and females. This locality is much further north than the former published records from the Florida Keys.

The coloration of the specimens from Sanibel taken on the second trip varied considerably from the descriptions by Needham and Byers. They might have described from very dry specimens, but even our dry specimens appear different. The stigma, appendages of the 10th segment, the face except for a little yellow about the mandibles and labrum, the vertex, coxae and trochanters of these specimens were decidedly greenish. The tibiae and tarsi were predominantly blackish and the femora were for the most part brownish, although sometimes blackish externally or inferiorly.

MACRODIPLAX BALTEATA. We have collected this species commonly on Merritt's Island, at Titusville, Sebastian Inlet, etc., in the vicinity of brackish water along the coast. A few years ago we were very much surprised to find it on the flood plains of the St. John's River near Geneva, approximately 20 miles inland. Here there are brackish water ponds, but we wondered what path they had followed in extending their range from the coast. When Mr. E. M. Davis collected a few specimens at a brackish lake west of Mims the possibility of their having spread inland at this point became apparent. The chain of lakes from Titusville to the St. John's would furnish a possible path for this extension of range. This species was also found on Sanibel in May, 1940, as we would expect from the species found there which prefer a similar habitat.

(To be continued)

List of Titles of Publications Referred to by Numbers in Entomological Literature in Entomological News.

1. Transactions of The American Entomological Society. Philadelphia.
2. Entomologische Blätter, red. v. H. Eckstein etc. Berlin.
3. Annales Sci. Naturelles, Zoologie, Paris.
4. Canadian Entomologist. London, Canada.
5. Psyche, A Journal of Entomology. Boston, Mass.
6. Journal of the New York Entomological Society. New York.
7. Annals of the Entomological Society of America. Columbus, Ohio.
8. Entomologists' Monthly Magazine. London.
9. The Entomologist. London.
10. Proceedings of the Ent. Soc. of Washington. Washington, D. C.
11. Deutsche entomologische Zeitschrift. Berlin.
12. Journal of Economic Entomology, Geneva, N. Y.
13. Journal of Entomology and Zoology. Claremont, Cal.
14. Archivos do Instituto Biologico, Sao Paulo.
15. Annales Academia Brasileira de Sciencias. Rio de Janeiro.
17. Entomologische Rundschau. Stuttgart, Germany.
18. Entomologische Zeitschrift. Frankfurt-M.
19. Bulletin of the Brooklyn Entomological Society. Brooklyn, N. Y.
21. The Entomologists' Record and Journal of Variation. London.
22. Bulletin of Entomological Research. London.
23. Bolletino del Lab. di Zool. gen. e agraria della Portici. Italy.
24. Annales de la société entomologique de France. Paris.
25. Bulletin de la société entomologique de France. Paris.
27. Bolletino della Societa Entomologica Italiana. Genova.
28. Ent. Tidskrift utgifen af Ent. Föreningen i Stockholm. Sweden.
29. Annual Report of the Ent. Society of Ontario. Toronto, Canada.
30. Archivos do Instituto de Biologia Vegetal. R. d. Janeiro.
31. Nature. London.
32. Boletim do Museu Nacional do Rio de Janiero. Brazil.
33. Bull. et Annales de la Société entomologique de Belgique. Bruxelles
34. Zoologischer Anzeiger, hrsg. v. E. Korschelt. Leipzig.
36. Trans. Royal Entomological Society, London. England.
37. Proceedings of the Hawaiian Entomological Society. Honolulu.
38. Bull. of the Southern California Academy of Sciences. Los Angeles.
39. The Florida Entomologist. Gainesville, Fla.
40. American Museum Novitates. New York.
41. Mitteilungen der schweiz. ent. Gesellschaft. Schaffhausen, Switzerland.
42. The Journal of Experimental Zoology. Philadelphia.
43. Ohio Journal of Sciences. Columbus, Ohio.
44. Revista chileña de historia natural. Valparaiso, Chile.
46. Zeitschrift für Morphologie und Ökologie der Tiere. Berlin.
47. Journal of Agricultural Research. Washington, D. C.
50. Proceedings of the U. S. National Museum. Washington, D. C.
51. Notulae entomologicae, ed. Soc. ent. Helsingfors. Helsingfors, Finland.
52. Archiv für Naturgeschichte, hrsg. v. E. Strand. Berlin.
53. Quarterly Journal of Microscopical Science. London.
55. Pan-Pacific Entomologist. San Francisco, Cal.
57. La Feuille des Naturalistes. Paris.
58. Entomologische Berichten. Nederlandsche ent. Ver. Amsterdam.
59. Encyclopédie entomologique, ed. P. Lechevalier. Paris.
60. Stettiner entomologische Zeitung. Stettin, Germany.

61. Proceedings of the California Academy of Sciences. San Francisco.
62. Bulletin of the American Museum of Natural History. New York.
64. Zeitschrift des österr. entomologen-Vereines. Wien.
65. Zeitschrift für angewandte Entomologie, hrsg. K. Escherich. Berlin.
67. University of California Publications, Entomology. Berkeley, Cal.
68. Science. New York.
69. Physis. Revista Soc. Argentina Cien. Nat. Buenos Aires.
70. Entomologica Americana, Brooklyn Entomological Society. Brooklyn.
71. Novitates Zoologicae. Tring, England.
72. Revue russe d'Entomologie. Leningrad, USSR.
73. Mem. Instituto Butantan. Sao Paulo, Brazil.
75. Annals and Magazine of Natural History. London.
77. Comptes rendus heb. des séances et mémo. de la soc. de biologie. Paris.
78. Bulletin Biologique de la France et de la Belgique. Paris.
79. Koleopterologische Rundschau. Wien.
82. Bulletin, Division of the Natural History Survey. Urbana, Illinois.
83. Arkiv för zoologie, K. Svenska Vetenskapsakademien i. Stockholm.
84. Ecology. Brooklyn.
87. Archiv für Entwicklungs mechanik der Organ., hrsg. v. Roux. Leipzig.
88. Die Naturwissenschaften, hrsg. A. Berliner. Berlin.
89. Zoologische Jahrbücher, hrsg. v. Spengel. Jena, Germany.
90. The American Naturalist. Garrison-on-Hudson, New York.
91. Journal of the Washington Academy of Sciences. Washington, D. C.
92. Biological Bulletin. Wood's Hole, Massachusetts.
93. Proceedings of the Zoological Society of London. England.
94. Zeitschrift für wissenschaftliche Zoologie. Leipzig.
95. Proceedings of the Biological Soc. of Washington, Washington, D. C.
97. Biologisches Zentralblatt. Leipzig.
98. Le Naturaliste Canadien. Cap Rouge, Chicoutimi, Quebec.
101. Tijdschrift voor entomologie. Nederland. Ent. Ver., Amsterdam.
102. Entomologiske Meddelelser, Entomologisk Forening, Copenhagen.
103. Journal of the Kansas Entomological Society, Lawrence, Kansas.
104. Revista de la Sociedad entomologica Argentina, Buenos Aires.
105. Revista de Entomologia, Rio de Janeiro, Brazil.
106. Anales Sociedad Cientifica Argentina, Buenos Aires.
107. Proc., Royal Entomological Society, London.
108. Revista, Col. Nac. Vicente Rocafuerte, Guayaquil.
109. Arbeiten uber morpholog. und taxonom. ent. aus Berlin-Dahlem.
110. Arbeiten ueber physiolog. u. angewandte ent. aus Berlin-Dahlem.
111. Memorias do Instituto Oswaldo Cruz. Rio de Janeiro.
112. Anales del Instituto de Biologia Mexico.
114. Occasional Papers of the Museum of Zoology, University of Michigan.
115. Memorias de la Soc. Cubana de Hist. Nat. Havana, Cuba.
116. Parasitology. Ed. Keilin and Hindle. London.
117. Microentomology, Stanford University.
118. Ward's Ent. & Nat. Sci. Bull., Rochester, N. Y.
119. American Midland Naturalist, Notre Dame, Ind.
120. The Great Basin Naturalist, Provo, Utah.
121. Ciencia, Mexico City.
122. Revista Museo de la Plata, Buenos Aires.
123. Indian Journal of Entomology, New Delhi.

Current Entomological Literature

COMPILED BY V. S. L. PATE, L. S. MACKEY and E. G. FISHER.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the current or preceding year unless otherwise noted. All continued papers, with few exceptions, are recorded only at their first installment.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

Note. References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to neotropical species, and not so indicated in the title, have the symbol (S) at the end of the title of the paper.

The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the list of Periodicals and Serials published in our January and June issues. This list may be secured from the publisher of **Entomological News** for 10c. The number of, or annual volume, and in some cases the part, heft, &c., the latter within ( )follows; then the pagination follows the colon :

Papers published in the Entomological News are not listed.

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Ogloblin, A. A.—See under Small Orders. **D'Rozario, A. M.**—See under Anatomy. **Schwarz, H. F.**—Additional species and records of stingless bees (Meliponidae) from British Guiana based on specimens collected by the Terry-Holden Expedition. [40] no. 1078: 12 pp., ill. (K*). **Skwarra, E.**—Siedler und Siedlungsbedingungen auf Ameisenpflanzen. [Verh. VII Internat. Kongr. Ent. Berlin] 2: 1331-1339, ill. **Smith, M. R.**—The identity of the ant Camponotus (Myrmentoma) caryae (Fitch). [10] 42: 137-141, ill. **Walley, G. S.**—A revision of the Ichneumon-flies of the gen. Campoplegidea occurring in America north of Mexico. [Scientific Agriculture] (20) 12: 647-734, ill. (k*). **Weber, N. A.**—Rare Ponerine genera in Panama and British Guiana (Formicid.). [5] 47: 75-84, ill. (*). **Weyrauch, W.**—Die allgemeinen Prinzipien der Zusammenarbeit bei sozialen Insekten, nach Festellungen an Vespa und Dolichovespula. [Verh. VII Internat. Kongr. Ent. Berlin] 2: 980-984.

SPECIAL NOTICES.—Vegetation type maps of California and western Nevada. By A. E. Wieslander. Univ. of Calif. Press, Berkeley, California. 1932.

OBITUARY

The *Philadelphia Inquirer* for October 10, 1940, carried a dispatch from Bedford Hills, New York, of the preceding day, that MISS KATHERINE MAYO, best known for her book "Mother India," 1927, died at her home that day after a long illness, at the age of 72. She was born in Ridgeway, Pennsylvania.

Miss Mayo spent five years in Surinam extending into 1906. Among the letters which Dr. Henry Skinner left at the Academy of Natural Sciences of Philadelphia are some from Miss Mayo and her sister, Miss Gertrude Mayo, of the years 1906 and 1907, referring to insects which she sent for the Academy. In her letter from Paramaribo of May 22, 1906, she mentions that she had sent ten boxes by consecutive mails since March 29; "All the insects in these boxes have been caught here in Paramaribo or in the brush of the immediate outskirts." After her return to the United States, she placed an advertisement in the *News* for June and July, 1907: "Surinam insects for sale—Apply to Katherine Mayo, Frankford

Arsenal, Philadelphia, Pa." It was of this that she wrote from Locust, New Jersey, August 22, "I have as many answers, now, as I have insects for; so it may be as well to discontinue the advertisement." Previously, on July 6, 1907, she wrote of a visit to the Academy which "makes me wonder if by any chance there might be a place in the Academy that I could apply for." Dr. Skinner's reply, not at hand, brought the letter of August 22: "I should have liked working at the Academy, but as you say and show, the conditions are not exactly practical."—P. P. CALVERT.

We regret to notice in recent numbers of *Science* announcements of the deaths of the following biologists interested in entomology:

Dr. OTTO EMIL PLATH, professor of biology at Boston University, on November 5, 1940, in his fifty-sixth year. His papers and book on the biology of bumble bees are well known.

Miss GRACE ADELBERT SANDHOUSE, of the U. S. Bureau of Entomology and Plant Quarantine, specialist in identification of bees and wasps, on November 9, 1940, aged forty-four years. Her memoir on the North American Bees of the genus *Osmia* was reviewed in the *News* just a year ago.

Dr. JOHN PATTILLO TURNER, assistant professor of zoology at the University of Minnesota, on November 11, 1940, in his thirty-ninth year. A paper on the black widow spider in a Minnesota winter was contributed by him to the *News* for December, 1939.

Dr. F. W. EDWARDS, since 1937 deputy keeper of entomology at the British Museum of Natural History, on November 15, 1940, at the age of forty-six years. He was well-known for his work on the Diptera, especially the Nematocera, and was joint leader of the British Museum Ruwenzori Expedition of 1934-35 to the high mountains of British East Africa.

Prof. CHARLES WILLIAM WOODWORTH, emeritus professor of entomology at the University of California, on November 19, 1940, in his seventy-sixth year. An obituary notice by E. O. Essig is in *Science* for December 20, 1940. He had recently been elected an honorary fellow of the Entomological Society of America.

Entomological News for December, 1940, was mailed at the Philadelphia Post Office on December 20, 1940.

EXCHANGES

This column is intended only for wants and exchanges, not for advertisements of goods for sale or services rendered. Notices not exceeding three lines free to subscribers.

These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and, only when necessary those at the top (being ongest in) are discontinued.

Wanted.—Nitidulidae for determination or exchange. Correspondence desired with those who will collect. H. R. Dodge, 78 Anne Street, Clintonville, Wisconsin.

Wanted.—To hear from specialists who would care to determine some family of insects for a share of the duplicates. We have many specimens, especially in some families of Diptera and Hymenoptera. H. E. Jaques, Iowa Insect Survey, Mt. Pleasant, Iowa.

Insects from Northern Korea.—I will collect insects for specialists in certain groups upon their request; very rich fauna; rates reasonable. Address: Mr. Alexander M. Yankovsky, Shuotsu-Ompo, Korea, Japan.

Wanted—Living specimens of the luminous beetle **Phengodes** this summer. E. Newton Harvey, The Biology Dept., Princeton University, Princeton, New Jersey.

Malacodermata (except Lycidae and Cleridae) of the world. Will determine and purchase. Also exchange against Col. or all other insects from Bolivia. Walter Wittmer, Casilla 852, La Paz, Bolivia, S. America.

I want to collect Rothschildia, agapema, gulfina and io moths and Texas butterflies for interested persons. Eula Frizzell, R 4 San Benito, Texas.

Wanted—To hear from collectors who desire extra good cocoons of Michigan **Platysamia columbia,** that will emerge June, 1941. W. S. McAlpine, 575 Townsend St., Birmngham, Michigan.

Wanted—Specimens of the genus Trox from North America. Will exchange or determine for duplicate material. Mark Robinson, 231 Cherry St., Sharon Hill, Pennsylvania.

Lepidoptera—From the South, including P. palamedes, T. halesus and E. jucunda to exchange for fauna from other localities. H. W. Eustis, 2230 McDowell St., Augusta, Georgia.

Wanted—Egg cases of preying mantids. Correspondence desired with those who will collect. Osmond P. Breland, Department of Zoology, The University of Texas, Austin, Texas.

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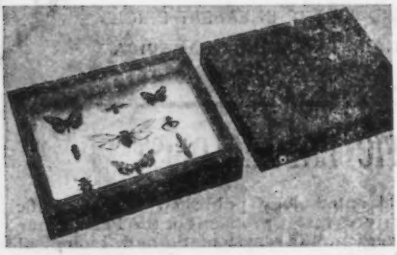

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